RESEARCH PAPER

Marketing of Bay Leaf in Nepal and Northern India: Lessons for Improving Terms of Participation of Small Farmers in Markets

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Abstract Non-timber forest product commercialisation requires information on what and who is involved in markets, but this is rarely documented. This paper presents the findings of a study to assess the structure and dynamics of markets for bay leaf (*Cinnamomum tamala* Nees and Eberm) in Nepal and in Uttarakhand state in India. Data were collected from key informant interviews with stakeholders from the governments of the two countries, research agencies, user groups and traders associations, from focus group discussion involving 100 farmers and district and wholesale level traders, and from stakeholder meeting and interviews with traders using an open-ended questionnaire in the two countries. It was found that of the 2,500 tons of bay leaf traded in Nepal in 2009, 86 % was exported to India. The total size of the bay leaf market in Uttarakhand is estimated at 1,470 tons, with the spice industry as the main consumer. Nepalese bay leaf sustains the demand in Indian markets that were studied. Processing of leaves into essential oil and powder by wholesale traders takes place in Nepal and India respectively, but no regional trade in essential oil was observed. Three quality grades are sold in markets which are not known to the farmers. The bay leaf trade is increasing, creating an opportunity for farmers to engage in its cultivation. There is a need for transferring market information and improving policy implementation to promote transparent and equitable market linkages that enhance benefits to mountain farmers.

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Introduction

Over the last two decades, the importance of non-timber forest products (NTFPs) to rural livelihoods, income generation, local economies and in some instance forest conservation has become increasingly recognised and appreciated in policy and research (Shackleton et al. 2011). From a livelihood perspective NTFP commercialisation, defined as increasing the value of NTFP in trade, is expected to increase income and employment opportunities especially for poor and otherwise disadvantaged people (Belcher and Schreckenberg 2007). For successful commercialisation there is a need to understand the potential markets for NTFPs and trends in pricing structures, availability of substitutes, quality requirements, and preferences of buyers (Belcher and Schreckenberg 2007), but official data on NTFP and MAPs markets are virtually non-existent (Olsen and Helles 2009).

Globally, the MAPs market is estimated to have a turnover of USD 60 billion and be growing at a rate of 7 % a year (Nagpal and Karki 2004). In India, it is estimated that 960 species of MAPs are traded, out of which 176 are in high demand, implying annual demand greater than 100 Mt (Ved and Goraya 2007). These authors also estimated the total annual demand of MAPs in India in 2005–2006 to be 319,500 Mt, with corresponding trade value of Rs 10,687 M (USD 2.4 billion). In Nepal, it is estimated that 20,000 tons of MAPs worth 18–20 million USD are sent to India in unprocessed form every year. About 20 high-demand and high-value products constitute about 80 % of the volume and value in trade in Nepal (Bhattarai and Olsen 2000).

Compared to the agriculture sector MAP markets are informal and unorganized (Nagpal and Karki 2004). The actors in the supply chain include the collectors and producers, local traders or agents at the village level, commission agents in the major markets, wholesale merchants and retailers (Edwards 1996; Olsen and Bhattarai 2005). Forest product markets do not function well because information is imperfect, transactions costs are high and because social, economic and political powers over the products are not distributed equally (Scherr et al. 2003). Analysis of marketing margins and price data for MAPs indicates that there is limited market integration (Olsen and Helles 1997). In most cases collectors and producers do not have access to information on market locations, prices, demand and other market requirements (Olsen and Helles 1997, 2009). There are examples in literature covering the exploitative relationships between harvesters and traders (Bhattarai 1997; Karki 2005; Subedi 2006) and between local traders and central wholesalers in Nepal resulting in market inefficiency (Olsen and Helles 2009).

Bay Leaf (*Cinnamomum tamala*) as a High Value MAP

Cinnamomum tamala Nees and Eberm is an evergreen tree belonging to family Lauraceae. Globally it grows in tropical and sub-tropical Asia, Australia, the Pacific

region and South Asia, at altitudes between 900 and 2,500 m (Parajuli 1998). In India it is found along the Himalayan range, in Sikkim, Assam, Mizoram and Meghalaya, Uttarakhand and Himachal Pradesh (Dighe et al. 2005), and is cultivated in Nainital (Uttarakhand), Kangra (Himachal Pradesh) and North East India. Bay leaf is among the top 10 species of MAPs in terms of value and volume traded from Nepal to India and also features among the 178 species that have demand exceeding 100 Mt in India (Ved and Goraya 2007). Bay leaf is commercially harvested from 35 districts of Nepal (Bhattarai 1997) and it is one of the most important commercial species on MAPs in Nepal (Olsen 1998). The collection of bay leaf in forests and farmlands to fulfil basic household needs is a long established tradition in both Nepal and India (Parajuli 1998; Tiwari 2005). Large-scale cultivation is reported in Udayapur District of Nepal (Lamichhane and Karna 2009).About 900 tons of bay leaf were produced in Udayapur district in 2008 (Choudhary et al. 2011).

The dried leaves are used as an ingredient in cooking and in the manufacture of spices (Choudhary et al. 2011). The essential oil of the leaves, known as tejpat oil, is used medicinally as a carminative, antiflatulent, diuretic and in treatment of cardiac diseases (Mir et al. 2004). It also finds use in fragrance component in soaps, detergents, cosmetics and perfumes, toothpastes, and industrial fragrances (Dighe et al. 2005). Bay leaf is also reported to have antibacterial, antifungal and strong antitermitic activities (Kapoor et al. 2008, 2009). Bay leaf was chosen for this study to generate further information on its markets due to the large-scale collection and cultivation for income generation, significant volumes in trade and wide medicinal and industrial uses, and scope for value addition at the production sites by processing into oil and powder, which is important in the mountain context to reduce volume, increase value and ease transportation from remote areas.

Tiwari (2005) reported bay leaf management and marketing system from North East India. Past research has concentrated on essential oil content from bay leaf in Nepal and India (e.g. Upadhaya et al. 1994; Dighe et al. 2005; Baruah et al. 2007). Olsen (1998) reported 6.5 Mt of bay leaf traded from Gorkha district of Nepal, and Olsen (2005) estimated an annual harvest volume of 1,028 Mt in Nepal in the year 1997–1998. However, a comprehensive regional market study for bay leaf is lacking for India and Nepal and for trade between India and Nepal. With this in view a market study was conducted to examine the functioning of bay leaf markets in Nepal and India with a focus on the regional market centres of Uttarakhand state in India. Uttarakhand borders Nepal, in both the plains and high mountains, and is one of the largest market centres of NTFPs including MAPs from Nepal as well as from other parts of north, east and north-east India. The research objective was to understand the bay leaf market in terms of the volumes, prices, quality standards and traders preferences of key attributes in order to identify market opportunities for small producers who cultivate and collect bay leaf for their livelihood.

Research Method

The value chain approach was used to investigate the bay leaf markets by tracking the market participants, quantities and prices from production sites to markets. In

India, the study sites (markets) were selected based on the Government of Uttarakhand's established *mandis* (auction yards) for NTFPs and MAPs. Past studies on trade of NTFPs from Nepal—including those of Edwards 1996; Olsen 1998, 2005; Larsen 2002; Subedi 2006 and Olsen and Helles 2009—were reviewed for generating information on marketing of MAPs.

The stakeholders from both within (producers and traders) and outside (government agencies, traders associations, chambers of commerce, non-government organisations (NGOs), community-based organizations and their networks and researchers) the MAPs market chain in Nepal and Uttarakhand were identified based on the studies mentioned above and interaction with various agencies as listed in Table 1. From these consultations a list of stakeholders from the two countries was prepared and individuals were randomly selected from each group for key informant interviews, focus group discussions, and meetings to review information collected on bay leaf markets.

In Nepal key informant interviews focusing on trade of bay leaf, using an open-ended questionnaire, were held with 34 experts drawn from the stakeholders in

Table 1 Agencies consulted in Nepal and India

Country	Institution	Type
Nepal	Agro Enterprise Centre of the (AEC)	Agency under the Federation of Nepalese Chamber of Commerce and Industry (FNCCI)
	Jadi Buti Association of Nepal (JABAN)	Traders association
	Nepal Herbs and Herbal Products Producers Association (NEHHPA)	Traders and product manufacturers association
	Nepal Herbs and NTFP Coordination Committee (HNCC)	Statutory body under the Ministry of Forests and Soil Conservation
	District Forest Office	Nodal agency for the management of forest resources
	Federation of Community Forest Users Nepal (FECOFUN)	Network of community based organization for management of forests
	Tribhuwan University	Research and education centre
	Asia Network for Sustainable Agriculture and Bioresources (ANSAB)	Non Governmental Organisation specializing on NTFP development
Uttarakhand, India	State Medicinal Plant Board (SMPB)	Nodal agency for development of MAP sector in the state
	Herbal Research and Development Institute (HRDI)	Research agency for the development of MAPs sector in Uttarakhand
	State Forest Department (SFD)	Government agency responsible for forest management in Uttarakhand
	Forest Development Corporation	Nodal agency under SFD for the harvesting and marketing of forest products in Uttrakhand
	HNB Garhwal University	A central university engaged in research and education
	Himalayan Action Research Centre (HARC)	NGO working for agribusiness and market development for mountain products

Table 1. Based on the study by Lamichhane and Karna (2009) that reported large-scale cultivation and trade of bay leaf in Udayapur district and information gathered from key informant interviews a visit to Udayapur district was organised. One focus group discussion (FGD) on the production and upstream level marketing of bay leaf with 10 randomly selected farmers from six villages of Rauta village development committee (VDC) was organised. FGDs on supply, market size, price, grades and end markets were organized with three groups of traders (district and central wholesalers) from Gaighat (n = 6) of Udayapur district, Kanchanpur (n = 10) of Saptari district and Nepalganj (n = 14) of Banke district. Based on the discussions an outline of the bay leaf market chain in Nepal was prepared. The information collected was further validated through email and telephone communication with the key informant interview and FGD participants and a preliminary bay leaf market chain map of Nepal and its export to India was developed.

In Uttarakhand, key informant interviews using an open-ended questionnaire were held with 33 experts from the stakeholders listed in Table 1. One round of focus group discussion on the supply, market size, price, grades and end markets was held with three groups of five to seven wholesale traders in each of the market centres of Ramnagar, Tanakpur and Rishikesh. Three focus group discussions on the production and upstream level marketing of bay leaf were held with two groups of 10 bay leaf farmers, who were selected at random in Champawat district, and with one group of 18 bay leaf collectors drawn from five villages of Najmola valley in Chamoli district. Based on the discussions a preliminary bay leaf market chain map in and beyond Uttarakhand was prepared. From the market centres in Uttarakhand the market chain was traced backwards to Nepalganj in Nepal, a large market centre and major exporting centre for MAPs bordering India. The regional bay leaf market chain from Nepal to Uttarakhand in India was thus covered.

One meeting of 20 stakeholders comprising bay leaf producers and collectors, traders, and facilitators including donors, NGOs and government agencies and researchers was organized in Kathmandu in Nepal and Dehradun in India in March 2009 for presenting and discussing the preliminary market chain maps. Major information—including structure of the market chain, supply from various sources, market preference and prevalent grades and standards—was discussed with the participants in groups and in plenary sessions and the key information was documented. During the consultation a set of five product and supply attributes (quantity, quality, packaging, cost and timely supply) emerged as essential for improving the marketing and returns from bay leaf.

A survey was conducted to collect data on prices, quantities, quality grades and perception of traders on the five product and supply attributes identified during the stakeholder meetings. Data were collected from interviews with 30 randomly selected traders from each country between May and August 2009. The list of traders prepared for India was further expanded to include traders from Kanpur and Lucknow in neighbouring Uttar Pradesh state. This mix of two states was deliberate because traders from Kanpur and Lucknow in Uttar Pradesh state are major buyers of bay leaf and have substantial influence over marketing due to their downstream linkages with manufacturers, exporters and large wholesalers. Their inclusion also aided validation of the information provided by the traders in Uttarakhand. Based on

the responses obtained during the interaction with stakeholders and the survey of traders an analysis of the bay leaf market size in Nepal, their flow to India, and the overall size, characteristic and the dynamics of trade of the bay leaf market in Uttarakhand were estimated and analyzed.

Data were coded and analyzed through SPSS version 16. Qualitative analysis of the functioning of markets and their underlying factors based on personal observation and cross verification of information was used to overcome the secretive nature of MAPs traders. The information collected was analyzed to produce a bay leaf market chain map with prices and volumes for both countries. The typology of market actors for Nepal proposed by Olsen and Bhattarai (2005) was used for describing the market channel and for preparing the bay leaf market chain map in and from Nepal to India. In the case of India, the category of actors in medicinal plants markets as reported by Subrat et al. (2002) was used to describe the market channels and actors. The views of traders on the five bay leaf product and supply attributes were measured on a ranking scale of 1–5 ranging from most important to least important. The scaling technique was used for its reliability for measuring the general level of perception of traders with regard to the attributes of current suppliers in the two countries. This technique allowed the conversion of qualitative constructs into quantitative units for the analysis of traders' perceptions. Differences in buying and selling prices for the quality grades were analysed using ANOVA. The views of traders for attributes related to their preference was analysed using a Chi-square test of goodness of fit.

Results

The Bay Leaf Market Chain in Nepal

Five levels of intermediaries—namely collectors and domesticators, oil processors, local traders, central wholesalers and manufacturers of processed products—were observed in Nepal irrespective of bay leaf being harvested from the wild or cultivated in private land. The local traders are based in: Udayapur, Terathum, Dhankuta and Morang in eastern Nepal; Makwanpur, Sindhuli and Rasua in central Nepal; and Palpa, Salyan, Jajarkot, Pyuthan and Kailali in western Nepal. These traders purchase bay leaf at USD[1] 0.13–0.16/kg from the farmers and sell to the central wholesalers for USD 0.27–0.32/kg. The oil processors are based at Udayapur and Palpa. They process approximately 250 tons of leaves per year. The 'marc' (byproduct after extraction of oil) is again sold through the district traders, and enters the national level markets. Figure 1 depicts the market chain map in Nepal.

The central wholesalers are based at: Dharan, Gaighat, Lahan, Saptari-Kanchan-pur, and Kakarbhitta in eastern Nepal; Gaur, Hetauda, Butwal, Ghorai, Tulsipur in central Nepal and Nepalganj; and Attaria in the western Nepal. Based on the analysis of the data collected from traders, focus group discussions and stakeholder meetings, the total quantity of bay leaf from the various production areas at the central
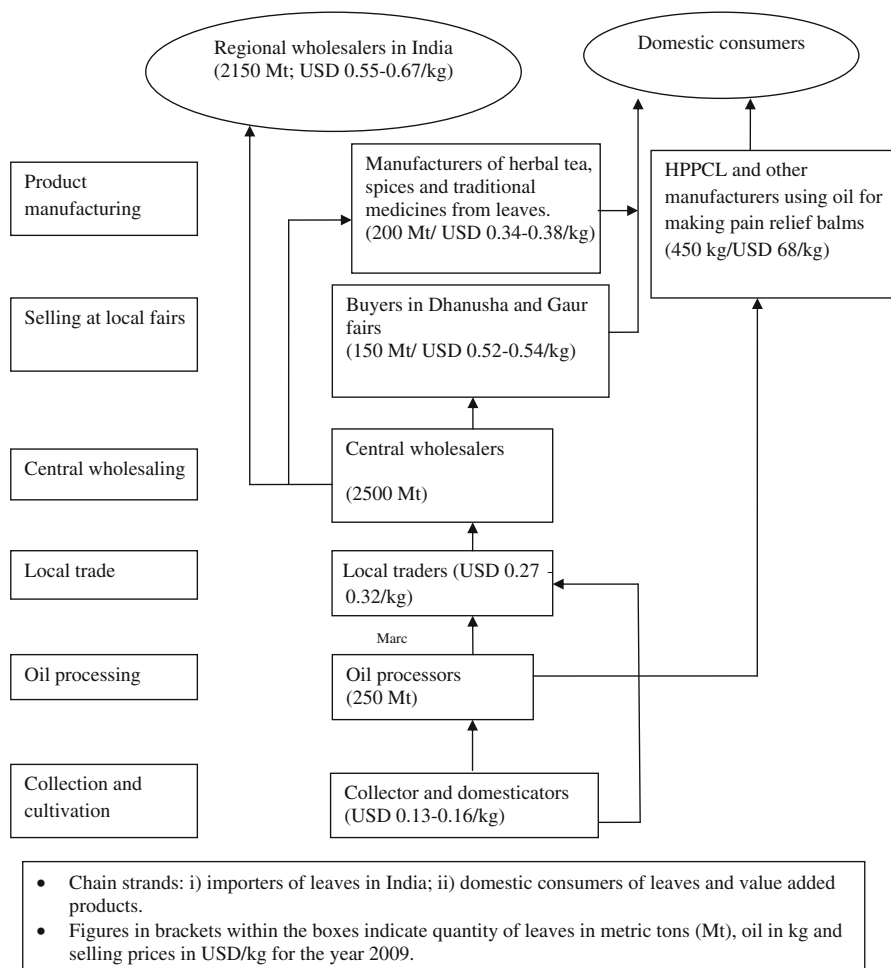
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[1] I USD = Nepali Rupees 73.

Fig. 1 Bay leaf market chain in and from Nepal in 2009

wholesale level was estimated to be 2,500 Mt. This aggregate figure may be considered as the total volume of trade of bay leaf in Nepal in 2009.

From the central wholesale markets approximately 200 Mt of leaves are purchased by the herbal tea and spices markets, manufacturers of traditional medicines and local markets in Kathmandu, at USD 0.34–0.38/kg. Another 150 tons are sold through the local fairs of Dhanusha and Gaur in Nepal, for USD 0.52–0.54/ kg. Approximately 2,150 Mt are sold to the Indian traders in Siliguri, Kolkata, Tanakpur, Lucknow, Kanpur and Delhi markets at USD 0.55–0.67/kg.

The major consumer of essential oil in Nepal is the state-owned Herbal Product Processing Company Limited (HPPCL), and few private companies manufacture value-added products including *sancho* (a pain relief balm) using bay leaf oil. About 450 kg of oil was purchased at USD 68/kg in these markets in 2009. Bay leaf essential oil is not exported to India.

The Bay Leaf Market Chain in Uttarakhand

The Government of Uttarakhand has mandated that all forest products harvested from the wild be sold through auctions. Designated mandis (auction yards) have been established at Rishikesh, Ramnagar and Tanakpur. For bay leaf from within the state and supplies from outside, the study identified six levels of functions for bay leaf: collection/harvesting, village trade, state level wholesaling (wholesalers 1), powder making, secondary wholesaling (wholesalers 2), and export (exporters). The main suppliers of bay leaf in the surveyed markets were found to be farmers from Kumaon (Didihaat, Pithoragarh, Almora and Nainital region). In Garhwal region, the major supplies are from Rudrapryag, Chamoli, Tehri, Dehradun and Uttarkashi.

Leaves are purchased by the village traders for USD[2] 0.4–0.45/kg from the farmers and sold to the state level wholesalers for USD 0.45–0.53/kg. The village level traders act as mediators between producers and wholesalers. Before the harvesting season, the wholesalers place their demands with the village traders. No formal contracts are signed between the wholesalers and village traders. Transportation costs from the village to target markets are borne by village traders, and no royalty is paid to the forest department for cultivated produce.

The state level wholesalers are based at Rishikesh, Ramnagar and Tanakpur. Traders at Tanakpur deal directly with Nepalese wholesalers and buy about 500 Mt of bay leaf each year where the price for 2009 was USD 0.55–0.67/kg. The wholesalers further dry, clean and grade the leaves, repack them and sell to secondary wholesalers outside the state at Kanpur, Lucknow, Indore, Amritsar and Delhi, for USD 0.66–0.77/kg. One additional function was visible at the state wholesaling level. The wholesalers powder the leaves and sell the powder to spice makers at USD 1.11/kg. Spice makers consume 90 % of the total bay leaf from these markets. Wholesalers also participate in the auctions to purchase bay leaf. The prices at the auctions ranged from USD 0.37–0.44 at the time of the survey. Figure 2 presents the bay leaf market chain map in Uttarakhand.

Secondary wholesalers in turn sell leaves to the exporters for USD 0.88–1.00/kg. Information on the channels from the secondary wholesalers to other parts of India was difficult to obtain and there was no clear demarcation of trade routes and buyers. However, it was evident that the secondary traders supply bay leaf to all major dealers in various states of India and to spice manufacturers within the country. The average price paid by the retailers to the wholesalers is estimated to be USD 1.5–1.78/kg. Households that purchase bay leaf from retailers pay on an average USD 2.66/kg.

Bay leaf is exported at USD 1.2–1.3 to buyers in Pakistan, Gulf countries and even Europe. Secondary wholesalers from Kanpur and Lucknow export leaves mainly to Pakistan and the Middle East.

Market Supply and Price in Uttarakhand

Bay leaf is supplied from various cultivated and wild harvested sources. Kumaon region of Uttarakhand supplies to the Ramnagar and Tanakpur markets, and
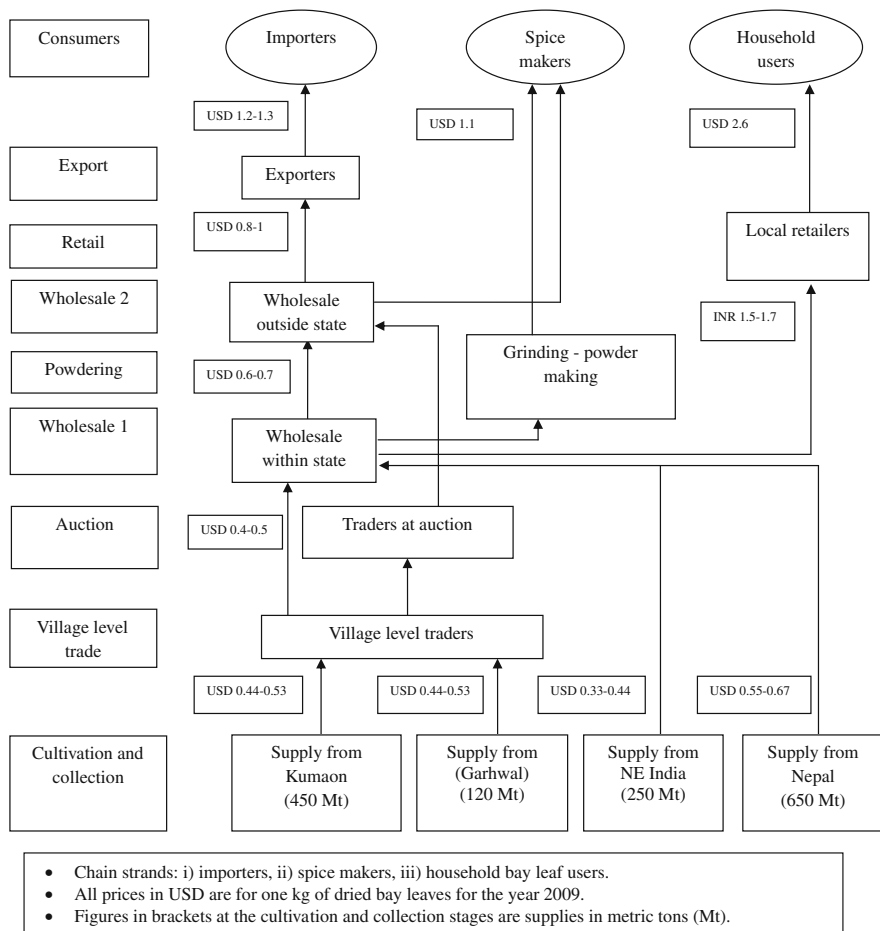
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[2] 1 USD = Indian Rupees 45.

Fig. 2 Bay leaf market chain in Uttarakhand, India in 2009

Garhwal region supplies to the Rishikesh market. According to the wholesalers of these markets the demand of bay leaf is increasing every year. Within Uttarakhand Kumaon region is the largest supplier with an estimated supply of 450 Mt to the markets surveyed in 2009. As indicated in Table 2, both the quantity and the price (in real and inflation-adjusted terms) of bay leaf traded by the wholesalers of Ramnagar have increased rapidly over the period 2004–2008.

Wholesalers in Tanakpur purchase bay leaf from exporters of Nepal on credit. Consignments from Nepal are delivered at the traders' godowns (storage centres) in Tanakpur, a border town close to Mahendranagar in Nepal. The Tanakpur market also receives bay leaf from the northeast Indian states. The leaves from Nepal and Uttarakhand have a cinnamomum-bark-like odour while those from north east have a sweet-clove-like fragrance. These leaves are of the eugenol type and are less favoured by the spice industry (Chauhan 2009).

Table 2 Trend of quantity and price for bay leaf in Ramnagar market

Year	2004	2005	2006	2007	2008
Average quantity (ton)	105	125	118	126	139
Average purchase price (USD/kg)	04 (041)[a]	046 (044)	047 (042)	052 (046)	056 (045)
Average sale price (USD/kg)	045 (047)[a]	054 (052)	056 (051)	064 (055)	073 (059)

Source File records, forest development corporation, Uttarakhand

[a] Figures in parenthesis against the purchase and sale price depict the inflation adjusted prices Converted as per wholesale price index (WPI) data published by The Office of the Economic Advisor, Ministry of Commerce and Industries, Government of India, for all commodities with base year 2004–2005

Table 3 Attributes of prices and quantities in bay leaf markets in India in 2009

Attribute	Prices (USD)	Quantity (Tons)[a]
Median	0.56	51.5
Minimum	0.37	5
Maximum	0.78	700
SD	0.1	151.7

Source Derived from interviews with 30 traders in five markets

[a] Figures for Rishikesh markets not included due to lack of regular trading

The average price for leaves from northeast India was USD 0.28/kg in 2009. The minimum and maximum prices for bay leaf from Nepal and Uttarakhand in Indian markets were USD 0.37 and USD 0.78 respectively (Table 3). The minimum and maximum quantity traded were 5 and 700 tons. The high standard deviation of 151.7 reflects that bay leaf traders are not homogenous in terms of their purchasing capacity. Larger traders undertake additional functions of bay leaf powdering for supplying to spice makers. While Uttarakhand supplies 570 Mt of leaves, northeast India supplies on average 250 Mt and Nepal contributes 650 Mt. The total size of the market in Uttarakhand is estimated at 1,470 Mt (Fig. 2).

Quality Standards in Bay Leaf Trade

The standards are established and practices defined by the traders, and price of the various grades are established accordingly. Parameters for the quality grades are based on the basis of colour, aroma, presence of twigs in the stems and size of leaves. Three grades of bay leaf (A, B and C) were observed in the markets. *Grade A Bay leaf has no* twigs and is green in colour. This grade comprises longest leaves, with no spots, damage, cuts and insect or fungal infections, and commands the highest price. *Grade B Bay leaf* comprises smaller leaves with small twigs, slightly yellowish in colour. *Grade C Bay leaf* is of smallest size, and bears cuts and insect damage. The leaves are mostly sold with long twigs and branches attached. The purchase and selling prices of the three grades are reported in Table 4.

Table 4 Comparative prices for the three grades of bay leaf in 2009 (USD/kg)

Quality	Maximum purchase price	Minimum purchase price	Average purchase price	Maximum selling price	Minimum selling price	Average selling price
Grade A	0.62	0.56	0.59	0.82	0.71	0.76
Grade B	0.45	0.36	0.4	0.71	0.67	0.7
Grade C	0.27	0.18	0.2	0.36	0.27	0.3

Table 5 Statistical analysis of the buying pattern of bay leaf as per grades

Grade	Average buying price (USD/Kg)	SD of buying price	SE of buying price (USD/Kg)	95 % CI for average of buying price	
				Lower limit	Upper limit
A	0.59*	0.024	0.004	0.588	0.605
B	0.4*	0.024	0.004	0.402	0.419
C	0.2*	0.029	0.005	0.216	0.237
Overall	0.41	0.154	0.016	0.379	0.443

* Significant at $p = 0.05$ %

Grades and Buying Prices

The buying price data were analyzed for differences in price by grade. As indicated in Table 5, ANOVA revealed that buying price of bay leaf differs statistically between grades (F statistic 1566.16; $p < 0.05$). Buying prices differ significantly between pairs of grades (Table 6).

Grades and Selling prices

Data on selling prices was tested for differences between grades. As indicated in Table 7 ANOVA reveals significant differences (F statistic 3396.5; $p < 0.05$). Selling prices differ significantly between pair of grades A and C and B and C, but mean prices of grades A and B are not significantly different (Table 8).

None of the traders considered there was a difference in the quality of bay leaf from India (Uttarakhand) and Nepal. These leaves are graded and sold on the basis of the thickness, colour, size and aroma, irrespective of their origin. The prices of Indian leaf (from Uttarakhand) and Nepalese leaf were estimated to range between USD 0.78/kg and USD 0.62/kg respectively depending on the quality and season.

Satisfaction of Traders with Their Suppliers in Nepal and India

The traders in the Indian and Nepali markets were asked for their level of satisfaction on a five point scale for a set of five product and supply attributes from their suppliers. The Indian traders were asked to rate their experience of their Indian suppliers. About 66 % of the traders were dissatisfied with the quantity of supplies from their Indian suppliers while a similar percentage was satisfied with the quality.

Table 6 Result of least significant difference (LSD) test of buying prices

(I) Grade	(J) Grade	(I–J) LSD
A	B	0.186*
	C	0.370*
B	A	−0.186*
	C	0.184*
C	A	−0.370*
	B	−0.184*

* Significant at $p = 0.05$ %

Table 7 Statistical analysis of the selling pattern of bay leaf as per grades

Grade	Average selling price (USD/Kg)	SD of selling price	SE of selling price (USD/Kg)	95 % CI for average of selling price	
				Lower limit	Upper limit
A	0.76*	0.025	0.005	0.762	0.780
B	0.7*	0.024	0.004	0.749	0.766
C	0.3*	0.025	0.005	0.298	0.316
Overall	0.61	0.218	0.023	0.567	0.657

* Significant at $p = 0.05$ %

Table 8 Result of least significant difference (LSD) test of selling prices

(I) Grade	(J) Grade	(I–J) LSD
A	B	0.0131
	C	0.4636*
B	A	−0.0131
	C	0.4505*
C	A	−0.4636*
	B	−0.4505*

* Significant at $p = 0.05$ %

In terms of packaging majority of the respondents were undecided. Almost 73 % of the respondents were satisfied with the costs of their supplies and in terms of the time of supply 33 % of the respondents were highly satisfied and 43 % was satisfied (Fig. 3).

The Indian traders were asked to rate their experience on supplies from Nepalese traders. About 66 % of Indian traders were satisfied in terms of the quantity of supplies from their Nepali exporters. In terms of quality of their supplies 57 % of Indian traders were highly unsatisfied. Only 10 % of the Indian traders were satisfied with the quality of supplies of Nepali bay leaf. In terms of packaging of their bay leaf, the responses varied with 23 % satisfied and 20 % dissatisfied and the remainder undecided. Similarly with regard to cost of their supplies while 13 % were highly satisfied, 26 % remained highly unsatisfied. About 87 % of the respondents were satisfied with the timing of delivery of their supplies from the Nepalese traders (Fig. 3).
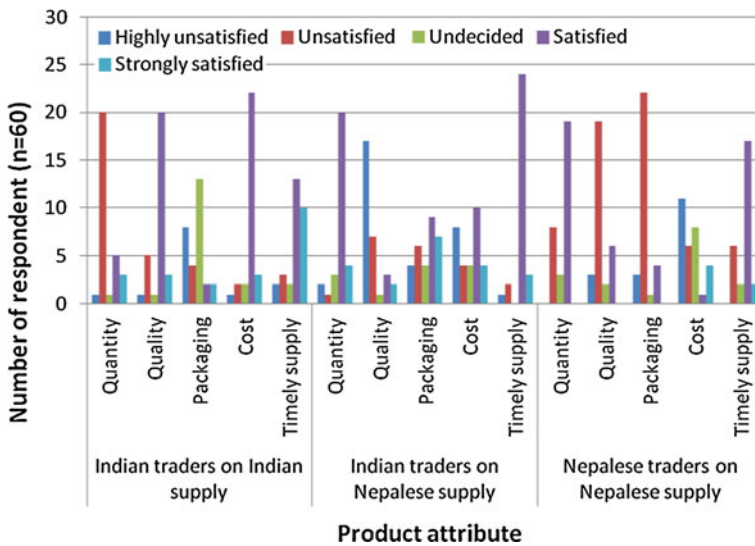
Fig. 3 Perception of traders on their bay leaf suppliers

The Nepali traders were asked to rate their experience on their Nepalese suppliers. About 63 % of Nepalese traders were satisfied in terms of the quantity of supplies. In terms of quality of their supplies 63 % of the Nepalese traders were dissatisfied and 73 % were also dissatisfied with the packaging. In terms of cost of their supplies 84 % of the respondents were satisfied. About 57 % of the respondents were satisfied with the timing of delivery of their supplies from the farmers (Fig. 3).

Discussion

To understand the implications of promoting NTFP commercialisation there is a need to comprehend what and who is involved in the market or value chain (Belcher and Schreckenberg 2007). Estimation of domestic production and supply of MAPs in India and Nepal is a grey area due to the lack of adequate record keeping mechanisms (Edwards 1996; Nagpal and Karki 2004). Despite of the small sample size (MAPs traders are few in markets studied), secretive nature of the trade and lack of interest on the part of traders to part with information, the study has identified vital information regarding the bay leaf market chain and the dynamics of trade. Bay leaf was found to be in high market demand, with a market volume of 1,470 Mt recorded in Uttarakhand and a production volume of 2,500 Mt in Nepal of which 2,150 Mt was exported to India in the year 2009. Trade of bay leaf in Nepal more than doubled from 1,028 Mt in 1998 to 2,500 Mt in 2009. Ramnagar and Tanakpur are the largest suppliers of bay leaf from the state of Uttarakhand to other Indian cities. However, Indian traders in Kanpur, Lucknow, Amritsar and Delhi also have direct contact with traders and exporters of Nepal (Olsen 2005).

At the level of wholesale trade in India, lower prices of USD 0.44–0.53/kg are paid for bay leaf from Uttarakhand. The higher price for Nepalese bay leaf could be attributed to the costs for transportation and the several hidden costs that are borne by the central wholesalers of Nepal while exporting. Of all the supplies to Uttarakhand markets, the lowest price of USD 0.33–0.44/kg is paid to the produce from north-east India. These leaves are mixed with leaves from Uttarakhand and Nepal during summer, when supply is low.

The only form of product transformation that takes place in Uttarakhand is powder making. The leaves are grinded and sold to spice companies making 'garam masala' (a common Indian spice) and other type of Indian spices. With increase in the production of many branded spices for various Indian cusines the demand for bay leaf powder is increasing. The cost of bay leaf powder is perceived to be less than other spice ingredients and hence its use is on the rise. In Nepal bay leaf is processed into essential oil, adding substantial value to the product. However trade in oil between the two countries is not reported. All essential oil that is produced is consumed within Nepal. The low demand for oil in India may be attributed to the supply of essential oil from *Cinnamomum zeylenicum* that is widely grown in southern India. The bark of *C. tamala* is often used as a substitute for *C. zeylenicum*.

Bay leaf quality has an impact on the buying and selling prices in Indian markets. However, while the buying prices between the top two grades differ significantly the selling prices do not. This may be due to the low supplies of grade 'A' leaves from the suppliers as well as the lack of appropriate grading by wholesalers during peak selling season when domestic demand is high, such that the timely availability of required volume of bay leaf becomes more important than the grade as well as the small difference in physical attributes. From the focus group discussions it was evident that producers and collectors were unaware of such grades. A lack of common understanding and interpretation of the grades between the producers and traders is also evident. Larsen and Olsen (2007) reported that MAP wholesalers are able to capture large profit margins through their control of market information, which is also a finding of this study.

Buyers in larger Indian cities (tertiary markets) do not differentiate between the leaves from India (Uttarakhand) and Nepal. According to the wholesalers, production of bay leaf is high in Nepal but quality requires improvement. They explained that this was due to the lack of knowledge of drying, grading, sorting and packaging techniques. The price received by the harvesters of bay leaf in Nepal in 2009 was 24 % of the regional wholesale price in India. This contrasts with the findings of Olsen and Helles (2009), that medicinal plants harvesters of Nepal capture a share of 34–55 % of the regional market price in India. Although the market recognizes quality, such information is not transferred to the farmers and Nepalese traders for post-harvest management. The results support earlier reports of Subedi (2006) and Choudhary et al. (2008) of the lack of transparency in MAPs markets. Trade that benefits the different market participants is more likely under conditions that promote transparency along the value chain (Sills et al. 2011). Indian farmers with closer proximity to the regional market centres seem to have a better understanding of market needs because the traders are satisfied on most of the product attributes from their suppliers.

During the survey no form of organized production and marketing efforts were observed from the two countries. A lack of interest by traders to enter into contractual formality with bay leaf collectors or producers and farmers was apparent. The reasons offered were the lack of trust and confidence on the farmers to conform to the quality, quantity and timelines and fear of breach of contract if higher prices are available in the market. Village traders were perceived to be more reliable because they have experience and trust from engaging with them. Discussion with the stakeholders reveals a lack of common vision for developing competitiveness in the bay leaf trade. Poverty-stricken collectors who are exploited by influential middlemen and traders are typical of characterize the marketing system of NTFP in Nepal and other countries of South Asia (Bhattarai and Croucher 1996; Karki 2005).

Conclusion

Bay leaf is a high value MAP with increasing market demand and price in recent years in India. Excess bay leaf demand in Indian markets is met from from Nepal. A opportunities exists to increase bay leaf cultivation in barren and wastelands for income generation of mountain people in both the countries. To capitalize further on these opportunities farmers can organize themselves into groups to coordinate the upstream production and post-harvest activities and improve quality through appropriate grading, storage and packaging. Such an approach can enhance their bargaining powers to develop contractual arrangements with traders and product manufacturers. Margins for value adding are high, but further research focusing on end-use industries is recommended to identify the comparative and competitive advantages that reduce risks and increase benefits of small farmers.

The facilitating roles of government agencies, donors, NGOs and federations of user groups including FECOFUN is vital to improve the terms of engagement of small producers in the market chain. The challenge is to transfer market information to the small collectors and producers and empower them to develop and strengthen market linkages. There is a need for: policy change and effective implementation of policies for the promotion of transparent, traceable and sustainable supply with forward and backward linkages between producers and buyers; fostering growth of market centres that are closer to the production areas; and ensuring equity in the share of benefits to the collectors and producers from the growing trade.

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